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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,650	11/20/2001	Moo-Jong Lim	8733.536.00-US (PATENT)	8857
30827	7590	06/26/2006	EXAMINER	
MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			TRAN, HENRY N	
			ART UNIT	PAPER NUMBER
			2629	
DATE MAILED: 06/26/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/988,650

Applicant(s)

LIM ET AL.

Examiner

Henry N. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-16 and 18-20 is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☒ Claim(s) 6 and 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on 4/13/06 has been entered. Claims 1-16 and 18-20 remain pending in this application. Applicants' Remarks provided in pages 6-7 of the Amendment submitted with the RCE have been fully considered with the results set forth as follows.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the: "a luminance level of each of the light sources" as recited in the base claim 1 must be shown or the feature canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must

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be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. The disclosure is objected to because of the following informalities:

The reference number "236" for the gate bus lines mentioned in line 10 of page 16 of the Specification does not agree with the reference number for the same part illustrated in Fig. 7. The gate bus lines 236 in line 10 of page 16 of the Specification should be changed as --the gate bus lines 246--.

The following claimed terms have no clear support in the specification: "a luminance level of each of the light sources" (claim 1), "the average lamination" and "the determined average lamination" (claim 6), "the perceived lamination" and "the lamination" (claim 7).

Appropriate correction is required.

### ***Claim Objections***

4. Claims 6 and 7 are objected to because of the following informalities:

The claimed terms: "the average lamination" and "the determined average lamination" recited in claim 6, "the perceived lamination" and "the lamination" recited in claim 7 are not found in the Specification; and said claimed terms should be changed to: --an average

luminance--, --the determined average luminance--, --a perceived luminance--, and --average luminances--; respectively.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshihara et al (U.S. Patent No. 6,873,311, hereinafter referred to as “Yoshihara”) in view of Takabayashi (U.S. Patent No. 6,573,882”).

Re claim 1, Yoshihara, Figs. 1 and 2, teaches a field sequential liquid crystal display device, comprising: a liquid crystal panel (21) having an upper substrate (2), a lower substrate (4), and an interposed liquid crystal layer (13); a data input driver (an outside data source such as “personal computer” for providing display data DD; see col. 5, lines 1-3); a back light (22) under the lower substrate for irradiating light onto the liquid crystal panel, said back light including at least three light sources: R, G, and B; see Fig. 4, and col. 4, lines 53-61; and a signal processing circuit, which comprises integrated circuits 30-37, connected to an output of the data input driver and to the light sources, wherein the signal processing circuit directly controls a luminance of each of the light sources based upon the input data from the data input driver; see Fig. 5; and col. 5, lines 38-67. However, Yoshihara does not teach expressly that the signal processing circuit directly controls a luminance level of each of the light sources based upon the input data from

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the data input driver. Takabayashi teaches a field sequential liquid crystal display device, wherein, the lighting periods  $t_1$ ,  $t_2$  and  $t_3$  for lighting the R, G and B backlight light sources in respective subfields SF1, SF2 and SF3 could be varied for providing different luminances of respective color picture input data; see Figs. 1 and 3; col. 3, line 60 to col. 4, line 52; and col. 5, lines 11-19. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of varying the lighting periods of the R, G and B backlight light sources as taught by Takabayashi in the Yoshihara device because this would provide an enhanced functionality and image quality of the field sequential liquid crystal display device. By this rationale, claim 1 is rejected.

Re claims 2-12, Yoshihara further teaches that: (i) the light sources include Red, Green and Blue, see Fig. 4; (ii) each light source is disposed at a lower corner of the liquid crystal panel, see Fig. 3, item 7, which is a LED array of RGB light sources; (iii) each light source is disposed under the liquid crystal panel, see Fig. 3; (iv) further including a panel (6) for uniformly dispersing light from the back light onto the liquid crystal panel, see Fig. 3; (v) the signal processing circuit is for receiving image data (DD) for determining the luminance in the image data ("Pixel data PD"), and for electrically controlling the luminance of each of the light sources based on the determined luminance, see Fig. 5(a), and col. 5, line 52 to col. 6, line 26; and (vi) the signal processing circuit is further for controlling the transmissivity of the liquid crystal such that the perceived luminance of the field sequential liquid crystal display device during a frame is dependent on the luminance in the image data, see col. 6, lines 18-26. Takabayashi further teaches that: (i) the transmissivity of the liquid crystal is controlled by turning on thin-film transistors, TR1 and Tr2, during subframe, see Figs. 1 and 2; and (ii) the light sources are turned

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on and off during sub-frames, see Figs. 1 and 3. Claims 2-12 are dependent upon the base claim 1, and are therefore rejected on the same reasons set forth in claim 1, and by the reasons discussed above.

***Allowable Subject Matter***

7. Claims 13-16 and 18-20 are allowed.

***Response to Arguments***

8. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new grounds of rejection.

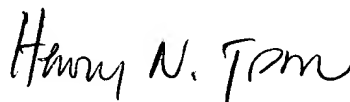
***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henry N. Tran whose telephone number is 571-272-7760. The examiner can normally be reached on M-F 8:00-4:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BIPIN H. SHALWALA can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Henry N Tran  
Primary Examiner  
Art Unit 2629

HT   
6/20/06